There was an important psychological difference between the two work seasons. At planting time, people were anxious; at harvest they were happy. People saw cash just ahead, for the crop was now safe. Each host of a cooperative work party gave at least one big convivial feast, the best he could provide and even the hired laborers got a round of liquor. People joked more than usual at work. Two boat loads of workers were observed racing down a canal at 6 a.m., shouting and cheering, although they had probably worked long hours for days or weeks before. Everyone knew that a joyous season was at hand.

When the crop was in, the people rested, fished, and began to prepare for big ceremonies demanding organized work. Supplies of fish were needed for preserving or for feasts. Labor and engines were now available, and with water low, fishponds could be conveniently drained, and the fish on the muddy bottom caught. A pond might be drained two or three times a year, but timing was determined by the availability of equipment and workers and by the needs of the annual ceremonial cycle. One pot of fish was given to each helper at a cooperative pond-draining.

Most farmers sold their rice in February. Capital was invested in farm equipment, buffalo, housing and ceremonies. Debts were cleared if possible. Cash expenditures for food, which had declined progressively since the beginning of the rice year, reached the yearly minimum, mostly because people had ample time to fish. People also saved up their money if they were sponsoring a ceremony, ate lightly at home if they were going to one. Since school closed from March 15 to May 1, because of the heat, money was not given to children for snacks.

The land dried up and cracked, rainwater for drinking gave out, and some canals were reduced to mud. Cherished plants were kept alive by watering, but no new planting could be done. Buffalo, which at either seasons were confined and fed, now roamed the fields, nibbling stubble. Everyone was busy and happy. Ordinations, weddings, cremations, merit-making feasts and several big holidays came one after another. Of the four New Year's Days observed in Bang Chan, the Buddhist New Year, which because of the lunar calendar fell about mid-April, was the most important, being celebrated over two days with extensive offerings of food to the priests and with other activities. The official New Year's Day, January 1, and the traditional New Year's Day about November 1, had rather slight observances. Chinese New Year's, in February, was celebrated by the Chinese residents who presented a school teacher and their hamlet headmen each with a boiled chicken and a Chinese sweet. Lent officially closed the ceremonial season, but the advent of plowing-time slowed the pace considerably.

When the rains finally came, the rice year started again.

canal misjudged his needs for milled rice and ran out, he had to mill his own paddy. Since the main canal was deepened in 1953, year-round transportation of rice by boat has been possible for many more farmers, and this may further decrease the consumption of home-milled rice.

Of 105 households which had and used a home rice mill, 99 used the polishings for feed but no family in Bang Chan used them for human food (Goldsen and Ralis, 1957). One farmer, headman of a hamlet, who lived near the main canal and the road to Minburi but who used home-milled rice, offered as the reason that the polishings were good chicken feed, and if he took rice to Minburi to be milled, the miller would keep the polishings.

As reported by Janlekha (1955) consumption of milled rice in 106 households amounted to about 285 kilograms per capita per year or 780 grams per person per day. Such "household consumption" includes "losses to pests and poultry, daily gifts to priests, contributions to temples and outlays for feasts and rites in undetermined but considerable amounts" (Sharp et al., 1953, pp. 265-266).

Flesh Foods Other than Fish. - The people of Bang Chan had a taste and appreciation for flesh food, but the production and use of meat was certainly inhibited by Buddhist tenets which prohibited the taking of life.[1] Killing of poultry, fish, etc. was tolerated among the relatively young, but was considered unsuitable to the aged who should be preoccupied with living virtuously. People felt, however, that the sin of taking life was condoned if they offered part of an animal to the priests.

Since many villagers were unwilling to slaughter buffaloes even when they become aged and useless, such animals were commonly kept until they died. Animals which had died of old age or disease were not, however, regarded by Thai Buddhists in Bang Chan as unfit for human consumption. Usually they were cut up and given to the priests. When the buffalo belonging to one family (Household 67)[2] participating in the dietary survey died, some of the meat was used fresh for curry, much

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1. Meat such as water buffalo and pork as well as fish was sold by venders. Since meat was relatively expensive and was usually used in small amounts with other foods, it was offered for sale in chunks which no longer resembled the living animal. Seeing such small quantities spared the sensibilities of the Buddhists who were thus removed a step from the killing. Actual butchering was done by Moslems or Chinese who did not object.

2. Households were identified by numbers assigned by lot.

was given away fresh to selected kin and friends, including those who helped to butchor, and the remainder was salted and dried. Of this, 7 kg. were kept and 5 kg. sold. Moslems are forbidden to eat an animal with two or four legs which "dies," although eating dead locusts or fish is not forbidden. Some Moslems in Bang Chan reported offering dead animals to Buddhists in barter for other materials.

Oxen, a sign of prosperity, were bought as calves by the Moslems and fattened for meat, usually with a ceremony in mind. In 1955 (Goldsen and Ralis, 1957) only 5 householders in Bang Chan raised hogs, and 4 of these had 1 or 2 only. Moslems ate no pork. A permit from the district officer was necessary for slaughtering a buffalo or an ox but not for hogs. Natural deaths of such animals were supposed to be reported.

Poultry was not commonly used for food in Bang Chan. It was the poor man's "feast" food suitable for guests. One couple in the lowest income level killed one chicken or a duck once a year to provide the traditionally good meal for their cooperative harvest helpers. Others, better off, might serve chicken especially at men's dinners. Pigeons were raised for sale in the market by one Moslem family. In 1953-54, one person was trying to raise a few turkeys for sale, as word had reached Bang Chan that turkeys were in demand for foreigners' holiday dinners. By 1957 turkey-raising for cash was spreading, but some villagers objected to having them around "because they look like vultures and bring misfortune."

Various wild creatures were used for food whenever they were caught. Turtle curry was considered a great delicacy, but as turtles, which could be caught from May to February, brought a good price in Bangkok, experts usually sold their catch. Frogs and turtles were sometimes kept in a jar until needed. Eels, frogs, cobra and other snakes were used for curry. Field rats, available all year, were roasted.

Fish. - Next to rice, fish constituted the most abundant food in the diet in Bang Chan. Either fresh or preserved,[1] they were available throughout the year. Killing

1. According to observation in 1952-54, fish caught in excess of immediate needs were preserved for later use. Serpentheads ((1)plaa (3)chauaun), which are about 7 or 8 inches long, and pilot fish ((1)plaa (2)sa-(2)lid), about 4 or 5 inches long, were commonly salted and dried. Heads and tails were removed and the fish were split open and salted overnight. The following morning the fish were washed and spread on fiber trays in the sun to dry. Some excess fish might be dried at anytime of year, but larger quantities were done during the hot, dry season. The process was usually complete within a week.

252 usually covered. A common practice was to remove the cover and stir the rice once, toward the end of the cooking process. When the rice was almost done, surplus cooking water was drained off, and often after a lapse of time, the covered pot was put back onto the fire which had been allowed to die down, for about 6 minutes.[1] Thus the final cooking was essentially a process of steaming. Total cooking time varied from a little over 20 minutes to three-quarters of an hour, depending primarily on the amount of rice cooked. The finished product was moist enough to form a ball when pressed between the fingers. Left-over rice, if not eaten cold as a snack, was reheated by being added to the hot rice at the next meal. Rice water was commonly given to pets if there were any. In 4 families which participated in the dietary study, rice water was given to infants, one 11-year old boy served himself liberally to it, and one adult man was observed to drink rice water before meals.

The many recipes for preparation of "with-rice" dishes may be grouped into two categories, hot and mild. Hot dishes always contain chili and varieties of spices which are hot tasting. One type of hot dish is curry which may be designated as either "hot" or "sour". Thai curry consists chiefly of fish or any available kind of meat, with or without vegetables. To make curry, shrimp paste, chili and spices were pounded thoroughly and then mixed with the meat and condiments and frequently with coconut milk. All were boiled together. Vegetables, if used, were added when the mixture was nearly done. Both vegetables and meat were cut into small pieces and washed before cooking. With the exception of dried chilies and tamarind, foods were not ordinarily left to soak in water. Sour curry differs from hot curry in that it contains less chili and spices and has a mixture of tamarind ((4)ma-(1)dan might be substituted) crushed with water added to it.

The other type of hot dish is (4)nam (3)phrig or chili sauce. It is made of shrimp paste, chili, garlic and other spices ground together in the mortar and then mixed with lime juice, sugar and salt or fishsoy. (4)Nam (3)phrig was always served with either raw or cooked vegetables. One informant commented that (4)nam (3)phrig was the everyday food among the villagers.

Preparation of mild dishes varied. These included panned vegetables, meat or eggs cooked with small amount of fat and a variety of spices and condiments including black pepper but not chili. Fish were sometimes roasted or boiled. Vegetables might be eaten either raw or cooked in coconut milk without seasoning. If vegetables were simply boiled in water,

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1. Median times for a series. In 15 instances cooking time before draining ranged from 18 to 38 minutes and rice was steamed from 2 to 12 minutes after draining.

APPENDIX A

Description of the Kitchen and Some Notes on Food Preparation in a Relatively Prosperous Household[1]

Friday, May 22, 1953

Arrived at 5:15 a.m. When we reached the house, the mother was holding the dog. The house was dark, and we walked around sleeping babies and children. . . . . The 15 year old niece who prepares meals here, was already at work. For light she had an oil lamp, a tin of about 1 pt. capacity, with wick. The rice was already measured, but she waited until SS could weigh it, before putting it on to cook. SS used her flashlight to see the scale and her notebook.

The kitchen here has a thatched roof, well smoked, but the walls and "windows" are of woven split bamboo. A sliding wooden "window" can be pushed back to allow access to a broad shelf outside. Here a large pan of pond water is kept, so that dishes may be rinsed and hands rinsed after each operation. Dishes are stacked upside down, on a wooden rack nearby, to dry.

The stove area in the corner has place for one fire, but several places for pots to stand. Downstairs, under the shed near the fish pond, is a larger clay stove, where the niece cooks the rice in the morning (enough for noon as well) and some other items; for example the (3)khii-(2)leg leaves which were cooked last night for use in sour curry this a.m. This probably keeps the kitchen cooler than it would otherwise be. Waste, fish bones, vegetable parings, etc., which are to be given to the chickens, can be thrown below through the space between two floor levels (kitchen and main rooms).

Rice water, coconut water, and food left in the serving bowls when the meal is over, are given to the dogs. A bowl is kept below, near where rice is drained, for dog food. Food left in pots is kept for humans to eat.

Fish caught in the pond are kept alive in pond water, in a water jar. When a fish is wanted, the niece catches one from the jar, stuns it with the back of her knife, and scales and cleans it on a split log nearby (rounded side of log up). The fish is put into a small basket, and the niece

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1. In reproducing these notes, slight changes have been made such as substitution of descriptive terms for personal names which appeared in the original.

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117 takes it down the steps to the fish pond, where she swishes
252 the basket around to wash the fish, and rinses her hands at the same time.

[231] There are some hazards to the food--chickens trying to get at the edible part of fish while the niece cleans it (she leaves the scales, etc. for them to eat); cat and kittens in the kitchen, having to be driven away from the grated coconut and coconut milk, and getting an occasional unweighed nip. Whether we start to weigh food for the evening meal or a.m. meal, some cooked foods are apt to be used, either left over
[262] from a previous meal, or cooked in advance. This a.m., for
[126] example, buffalo meat, already cooked (but not weighed before cooking) was used, and (3)khii-(2)leg leaves, which SS weighed last night. These latter were cooked last night, to reduce bitterness, then put into curry today.

Description of Food Preparation Area in a Relatively Poor Household

Wednesday, May 27, 1953

117 Arrived about 5:45 a.m. While other food was being pre-
[262] pared, the 11-year old son came in with a package of salted white radish and a small milk tin with some coconut oil which had just been bought. This is the house which we found flooded when they sent for us to see the baby last fall. The roof seems to be well thatched. The floor is not wet after last
[358] night's downpour. The bed platform, in one corner, is about
[359] 8 x 10 feet. The baby's cradle hangs above it. In the oppo-
[362] site corner is a shelf where utensils are kept. Some food,
[261] in paper bags, is in a basket hung from the roof. Fresh fish
[359] is kept in a jar of water until needed. The stove is on a small mound of earth, and further elevated on a small box (just big enough for the stove) filled with earth.

[355] We sit on a mat, spread on the mud floor, with the scales, plastic bowls and waxed paper ready for weighing food.
[355] The children lie on a mat nearby. In the house is a fresh mound of earth, a small straw bin with rice, and various pieces of equipment.

4:Phillips E-4,5 (1956-1957) 1966
AO7 Central Thai AO7
Bang Chan

that it is simply a "story," a description of the plight of other people, not the self. The story-teller or listener has the pleasure of a vicarious experience, but none of the pain of the real life situation. He can laugh over his good fortune in not being the person who was cheated out of his money or who was caught philandering by his wife. On the negative side, these stories also serve as a means by which the participants can express, through identification and projection, some of their own hostilities. The veil of humor provides in fact the ideal dress for hostility: one can be completely unabashed about expressing one's feelings (of wanting to steal, say, or wanting to humiliate), since what is expressed, in a form so exaggerated as to be acceptable, is simply the feeling and not the act itself. The hostility is made even more acceptable by the fact that it is projected onto the person in the story rather than referred to ego himself. In these terms, the telling of these stories probably does have something of the cathartic function cited earlier in the chapter: aggressions and hostilities that are otherwise kept under careful control are here permitted to emerge not only painlessly, but with a bit of relish. Finally, some of the laughter at these stories is probably also based on the feelings of embarrassment evoked in listeners. This is similar to the "there but for the grace of God . . ." motive but is different in that it is not based on personal identification with the person who suffers but rather on a diffuse feeling of discomfort over the expression of aggression—aggression toward anybody. There is embarrassment over things not being as they should be, over one's moral universe being temporarily out of joint. Also, the laughter is probably symptomatic of the listener's uneasiness as he becomes aware that the hostilities portrayed in the story are strikingly similar to those he himself harbors toward others. Embarrassed about his own aggressive impulses, he assuages them with laughter.

The motives for focusing on whimsical topics of conversation are less recondite and defensive than the above. Stories of the type describing "super-dogs" who find buried treasure are told because they are at the same time such outrageous and yet gentle distortions of reality. It is the juxtaposition of incongruous elements that is so appealing here. In ordinary Thai thought, for example, the dog is generally considered to be one of the most inconsequential and worthless of creatures. He is tolerated for his ability to warn of strangers and dispose of refuse, but nothing remotely approximating the feeling of "man's best friend" is associated with him. For such a lowly creature to be the sudden possessor of miraculous power is just too foolish. An elephant, monkey, or cobra perhaps, but not a dog.[11] Only "uncivilized" forest people would accept such a story. Yet, because the dog is such a familiar part of one's environment and also a living creature

[11] Doubt would exist for these creatures too, but because of their mythological and historical significance it would be somewhat tempered.

4:Phillips E-4,5 (1956-1957) 1966
AO7 Central Thai AO7
Bang Chan

538 231 ("Who knows what he was in earlier lives and what powers he brought with him into this one?"), there is enough reality about the tale to make people want to listen. Moreover, it is wish-fulfilling fantasy; people laugh because reality has been outraged, but with a lingering desire that it really could be.

522 [538] The kinds of stories outlined above do not exhaust the villagers' stock of conversational humor. There are also tall stories without the supernatural touch, broad burlesques, "dirty" jokes,[12] and the countless epigrams that work their way into almost any conversation; the last are not so much topics of conversation as they are means of punctuating a point. However, enough has been said to indicate that in its cognitive stylization and social psychological purposes, Bang Chan humor is not too different from Western humor. It is rather the content, frequency, and evaluation of the humor that is so distinctive. That the content should be distinctive is of course self-evident, since all humor is rooted in the implicit and familiar premises of workaday, cultural life. In fact the very essence of a joke is seeing the culturally familiar in an entirely new light. This may help to explain, incidentally, why it is always so painfully self-defeating to try "to explain" the content of a joke: its entire effect is dependent on the listener's implicit

522 121

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522 831 538 [081] [12] Sexual and scatological humor in Bang Chan pose some special problems. On the one hand, because villagers take such a matter-of-fact approach to sex, there are actually few jokes and stories that aim explicitly at being titillating or risqué. For most Bang Chaners, sex is something to be experienced and enjoyed in private, not snickered about barracks-style; there is no *sanug* in *talking* about sex (although there may be in playing with tabooed words, especially if cleverly done). Also, villagers seem to lack any interest in lewdness for its own sake. Not only Bang Chan, but Thai culture in general, is striking for its relative absence of attempts to edify sex: there is nothing in Thai literature or art, for example, approximating the exaggerated bawdiness of Rabelais or the graphic sensuality of the kind of sculpture found at Khajuraho and Konarak in India.

On the other hand, sexual situations are very often used as vehicles for portraying the foibles and stupidities of people. Villagers particularly enjoy stories of individuals of either sex who devise ways for seducing the unsuspecting, or of individuals who manage to outwit their spouses while philandering with their lovers; the more complex their machinations, the more amusing the stories. However, it is the social psychological, not the sexual, dimensions of these tales that form the major bases of their appeal.

Finally, it should be noted that villagers tend to distinguish between what could be called "genital" and "anal" modes of humor. The latter type has considerably fewer taboos associated with it. Thus, whereas most villagers would avoid going into descriptive detail in reporting the physical aspects of a tale of sexual conquest, they would have few qualms about discussing (and often with acoustical detail) such things as people who pass air in public or who otherwise get themselves into compromising anal situations. (Interestingly, J. Marvin Brown in his linguistic work with Thai informants, often including female university students, reports in a personal communication that he encountered difficulty in obtaining the various Thai terms for sexual organs and acts, but that the terms for anal and excretory behavior were given with little hesitation.)

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Sanitation

364 Disposal of Garbage. - Of the 6 categories for disposal of garbage listed on the schedule (Appendix A), 3 only were used by the families who took part in the dietary study (Table 18).

Table 18

Disposal of Garbage in 11 Households, Bang Chan

Round[1] of dietary study	Number of Families Using Each Method			
	I	II	III	IV
[231] Garbage fed to animals	10	10	10	10
Garbage thrown into canal	2	6	3	4
Garbage thrown elsewhere	5	5	5	5

1. Each family was visited 4 times during the year. Each series of visits to the 11 households was called a round.

Ten of the 11 families fed some garbage to animals, and for 4 families, on 10 survey days, (i.e. 1 to 4 days per family), this was the only manner of garbage disposal. One family had no animals other than chickens, and these were not fed garbage on the survey days.

Each family seemed to have its own pattern for disposal of garbage which was not fed to stock. Those who threw it in the canal, did so consistently, except when the nearby canal was dry, and those who threw garbage elsewhere, did this consistently. No one was observed to burn or bury garbage.

251 Protection of Food From Contamination by Insects and Other Animals. - Large oil tins, with covers, were commonly used to store dry rice and other non-perishable foods in the kitchen area. One family covered the container with a plate.

In 8 of the 11 households of the dietary study some provision was made for storage of left-over and perishable foods. None of the households had screened cupboards, but two used some means to ant-proof the legs of the cupboard such as rubbing them with powdered pitch, or setting them in bowls of water.

A2 [See p. 63 - Analyst]

Economic Level

It could be, of course, that people on a higher economic level are in a better position to try agricultural innovations, since they might more easily afford not only an initial cost but also possible loss in trying out something new.

The survey data provide several indicators of economic level. Among other questions on this subject, all respondents were asked: "Here in your household how many buffaloes do you own?" About one-quarter reported owning no buffaloes at all; a little more than that proportion reported owning four or more; the median number of buffaloes reported was between two and three.

In Bang Chan buffalo are an indication of wealth, as is the amount of land planted to rice. Thus all farmers in the sample were also asked, "Last time you planted rice, how many rai* of rice did you plant?" About a third reported that they planted 19 rai or less; about one-fourth reported that they planted 40 rai or more; the median number of rai reported was 26.3.

If the reported number of buffalo owned is an adequate measure of economic level, then one would expect a high correlation between reported buffalo ownership and reported number of rai planted. If the expectation is borne out by the survey data the two indices may be used interchangeably. (Table 7 reports this relationship for the male farmers in the sample.)

TABLE 7. FARMERS# WHO OWN MORE BUFFALOES ARE MORE LIKELY TO CULTIVATE LARGER LAND HOLDINGS

"...how many buffaloes do you own?"

"...how many rai of rice did you plant?	None, one or two (99)	Three or more (112)
Less than 9	31%**	1%
10-19	32	7
20-29	18	27
30-39	15	23
40-or more	3	41

Male farmers only
** Percentages may add to 99 or 101 owing to rounding of figures.

* A Thai land measure; 1 rai = 0.4 acres.

6: Goldsen and Ralis Z-4.5 (1955) 1957
AO7 Central Thai AO7

*177
*178
241
402
434
556

Decisions to use all these innovations--with the possible exception of the use of fertilizer--seem to be more widespread among the upper economic levels of the population. (See Table 8.) One wonders whether the initial link between use of the motor and readiness to try the innovations may actually disguise a more basic relationship based simply on ability to afford the investment and the risk.

*177
*178
228
• 231
241
244
434
402
556

TABLE 8. FARMERS* ON HIGHER SES LEVELS ARE MORE LIKELY THAN OTHERS TO HAVE USED THE MOTOR, TO HAVE GROWN MUSHROOMS AND TO HAVE RAISED TILAPIA

	Ownership of Buffaloes	
	2 or less (99)	3 or more (112)
Used motor		
Own	6%	37%
Use	53	45
Neither	41	18
Grew mushrooms		
Yes	30%	60%
No	70	40
Raised tilapia		
Yes	26%	42%
No	74	58
Used fertilizer		
Yes	12%	17%
No	78	83

* Male farmers only

The following table presents again the initial relationships between use of motor and readiness to try out other innovations. But this time the link is examined separately for persons on the different economic levels.

Table 9 was made by first dividing the population into two groups, those from high and those from low economic levels. The resulting two groups were then further subdivided on the basis of whether they owned (or used) a motor or whether they did not. In each of the four resultant groups the percentage that raised tilapia was then calculated. Thus among those of high economic level who own or use motors, 45 per cent raised tilapia, and we infer that 55 per cent did not raise tilapia. The same procedure was repeated to ascertain the percentage that has tried fertilizer and subsequently the percentage that has tried mushroom growing.

This table shows that in tilapia raising both factors operate independently and cumulatively, i.e. people who are better off economically and who also own or use the motor are almost two and a half times as likely to raise tilapia as their economically depressed counterparts who neither own nor have access to the motor. (45 versus 17 per cent respectively.)

The link between use of the motor and attempt to try fertiliser holds regardless of economic level.

The initial link between ownership or use of the motor and growing of mushrooms, on the other hand, is shown to be a conditional one. Those on a higher economic level are more likely than others to try mushroom growing, whether or not they own or use a motor. Those on the lower economic level, with access to a motor are more likely to take up tilapia culture.

TABLE 9. RELATIONSHIP OF USE OF MOTOR AND OTHER INNOVATIONS TO ECONOMIC LEVEL

	Economic Level	
	High*	Low**
Owns or used motor (Proportion who have raised tilapia)		
Yes	45% (89)	33% (57)
No	25 (21)	17 (40)
Owns or used motor (Proportion who have tried fertiliser)		
Yes	20% (89)	16% (57)
No	5 (21)	* (40)
Owns or used motor (Proportion who have tried mushroom growing)		
Yes	60% (89)	36% (57)
No	57 (21)	23 (40)

* Three buffaloes or more
** Two buffaloes or fewer

Literacy

One important hypothesis to account for differential acceptance of innovations is that the decision to try them out is aided by exposure to the available sources of information. If this were indeed the case, then users of these innovations will be more apt to be able to read and write than be illiterate.

Literacy was determined by asking each respondent whether

admit in response to a direct question* that they have a debt. Confidence in the validity of these responses as an index of indebtedness is increased since the expected correlation between indebtedness and ownership of buffalo is reflected in the survey data.

TABLE 23. INCIDENCE OF REPORTED DEBT IS HIGHER AMONG VILLAGERS WHO REPORT OWNERSHIP OF MORE BUFFALOES

	Reported Ownership of Buffaloes		
	None (81)	One to three (155)	Four or more (97)
"...Do you now have a debt?			
Yes	49%	56%	69%
No	51	44	31

When the use of agricultural innovations is examined for those farmers who say they have a debt, compared with those who deny it, it becomes apparent that there is a relationship only between indebtedness and use of the motor but not with any of the other mentioned innovations. Seventy-nine per cent of the male farmers who said they have a debt own or use the motor; among those who claim they have no debt the proportion owning or using the motor is significantly less (60 per cent).

TABLE 24. INCIDENCE OF MOTOR USE IS HIGHER AMONG FARMERS WHO REPORT INDEBTEDNESS

	"...Do you now have a debt: "**	
	Yes (125)	No (85)
Motor		
Has used it	79%	60%
Never did	21	40
Tilapia		
Has tried it	37%	33%
Never did	63	67
Fertilizer		
Has used it	14%	16%
Never did	86	84
Mushrooms		
Has tried them	45%	48%
Never did	55	52

**Male farmers only

* The question: "...I'd like to ask about a problem common in rural places all over the world. Do you now have a debt or not?" Janlekha's M.S. thesis, ibid., reports a similar distribution of indebtedness for his sample of 96 farmers.

7. I understand that, since the last war, there have been, around here, some introductions of new things in the field of rice farming, other farming, gardening, and fishing in order to raise production. What are these various new things? [177* 178* 125]

1.	Fertilizer	9	
2.	Small engine	4	[241]
3.	New rice seeds	3	
4.	Tilapia	98	[402]
5.	Other fish, specified	13	
6.	Fish, unspecified	80	[243]
7.	Mushrooms	45	
8.	Poultry	179	[228]
9.	Pigs	21	
X.	Other, specify	68	[244]
0.	Unascertainable	45	[235]

8. Here, some farmers get a lot more rice from one rai of land than others get. Generally speaking, what are the various reasons why this is so? [231] [243] [433]

1.	Fertiliser	59
2.	Skill of the farmer	63
3.	Quality of the soil	65
4.	Irrigation facilities	125
5.	Type of seed	17
6.	Other reason, specify	53

9.a. When was it more profitable for you to grow rice, this year just finished, or two or three years ago? [243] [434]

1.	This past year	131
2.	No difference	57
3.	2 or 3 years ago	62
4.	Unascertainable	25
—	Does not apply	58

b. If 2-3 years ago: If this is so, then it has become less profitable to grow rice. Such being the case, have you done anything to improve the income of your family?

7.	Yes	36
8.	No	25
9.	Unascertainable	1

c. If yes: what various things have you done?

5.	Nothing	4
6.	Mushrooms	6
7.	Poultry	8
8.	Fish (Incl. Tilapia)	5
9.	Fertiliser	
X.	Other, specify _____	25
Y.	Unascertainable	2

10.a. Do you own a small engine motor, or not? [402]

1.	Yes	70
2.	No	259
—	No Answer	4

125 [412] 50.d. (In your household) is there a pair of scissors of any kind or not?

7.	Yes, scissors	219
8.	No	114

[207] e. (In your household) is there a radio or not?

9.	Yes, radio	47
0.	No	286

[402] f. (In your household) is there a winnowing machine, or not?

X.	Yes, winnowing machine	102
Y.	No	231

[243] [402] g. (In your household) is there a windmill, or not?

1.	Yes, windmill	161
2.	No	172

[805] [405] 51. Do you have a wrist watch, or not?

3.	Yes	79
4.	No	252
—	No Answer	2

[231] a. Here in your household, how many buffaloes do you own?

5.	None	81
6.	One	27
7.	Two	67
8.	Three	61
9.	Four or more	97

b. (Here in your household) how many pigs do you have?

0.	None	321
1.	One	2
2.	Two	2
3.	3 or more	1
—	No Answer	7

[235] c. (Here in your household) how many chickens do you have?

4.	None	35
5.	1 to 2	7
6.	3 to 4	17
7.	5 to 9	31
8.	10 or more	243

d. (Here in your household) how many ducks do you have?

0.	None	208
1.	1 to 2	9
2.	3 to 4	16
3.	5 to 9	58
4.	10 or more	42

132 *243 The normal distribution of rain in the region, however, is almost ideal for single crop rice production. Heavy rainfall in May and June softens the soil for easy plowing and harrowing. During July and August, when the young plant does not require much water, the rainfall moderates. Again there is heavy rainfall in September and October when the maturing plant needs rising water as it shoots upward. Finally, during the harvesting season of December and January there is a minimum of rainfall. It is in terms of rainfall that the people divide the year into three seasons: (1) the rainy season of late May to November; (2) the cold season, December into early February; and (3) the dry hot season from late February to early May.

Vegetation

*243 137 [311] [351] [361] [312] Of the 6,404 rai privately owned in Bangchan 6,106 rai is devoted to rice and 298 rai to homelots. During the rice season the village is seen as a vast rice field interspersed with bamboos and fruit trees on the homelots which string along the half dozen canals of the village. In the dry season only stumps of rice stalks are left in the field.

192 • 231 Some of these may be removed by burning. With the coming of rains, which usually fall once or twice in March and four or five times in April, a variety of grasses begin to appear and the rice field is gradually transformed into a grass field, providing a pasture for the buffaloes until the next planting season when the size of the grass field available

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137 to the buffaloes will be gradually reduced by the process
• 231 of land preparation.

The homelot is usually surrounded on all sides,
244
245 except the one facing the canal, with bamboos which serve
351 to protect the farm home from strong wind. Within this compound there always is a kitchen garden where a variety of plants and vegetables for everyday use are grown. If the homelot is large, there may be enough room at the backyard for an orchard where fruit trees may be grown. In some cases, aquatic plants are cultivated in the canal in front of the house.

137 In addition to cultivated plants, there are to be seen also wild shrubs and vines which are more or less restricted to small strips of land along the banks of the canals. Wild aquatic vegetables, especially the morning glory, are always seen in these canals, making them appear narrower than they actually are.

Livestock

231 Buffaloes: As in most of the rice producing areas of the country, so in Bangchan buffaloes are used in all kinds of farm work where the help of draft animals is needed. Since the village is without land which can be grazed the year-round, buffaloes are not locally bred but are brought in from the northeast and other parts of the kingdom. To be sure, there are some local-born buffaloes, and these are considered to be stronger and to live longer than the imported

231 ones, but limited grazing areas and the burden of work imposed on them have been a factor militating against their reproducing themselves. During the first half of the rice year (April-September) buffaloes feed on green grasses, direct in the field which has not yet been plowed or cut for them by the farmers. During the second half of the year when the supply of green grasses is reduced to the minimum, they feed on straw which normally lasts until new grasses become available with the coming of rains. Buffaloes are used only for farm work and never for milking purposes.

235 Chickens: Practically every family in Bangchan raises chickens which are second only to rice as a source of cash income. Many breeds are found in the village. Most common are the native mixed breed and the imported Rhode Island Red. These chickens are raised "naturally" -- although the farmers feed them with paddy once in a while, most of the time they help themselves to paddy in the mat bins and in addition scavenge for a part of their feed. The size of the flock averaged 8.6 laying hens per family according to the 1949 survey. The same survey showed an average rate of production of 143 eggs per laying hen per year.

Ducks: In 1949, only one-half of Bangchan residents raised ducks but the size of the flocks was slightly larger than that of chickens, averaging 11.7 laying ducks per family raising them. The annual rate of production, too,

235 was slightly higher than that of chickens, averaging 155 eggs per laying duck.

178 231 Hogs: In 1949, two families were raising hogs which according to our observation did not seem to be well fed. When we returned to the village in 1952, not a single hog remained in Bangchan.

Fish

262 443 434 After rice, fish (and other marine animals) are by far the most important ingredient in the diet of Bangchan. More fish are bought from the outside than the very small amount that is exported from the village mainly by one or two very poor families who have availed themselves of this means of augmenting their income.

221 226 The villagers' annual cycle for fish-taking varies somewhat with the particular method used, and with the annual rice and ceremonial cycles: yet the maturation cycle of the principal types of fish is also a factor, and one which tends to give an overall orderliness to the annual cycle for fish in general. There is no time in the year when at least some fish are not available, nor is there any time in the year, even the busiest, when the family does not want fresh fish for its menu. For this reason, there is fishing the year round, at least in the form of the housewives simply setting nets in the canal and then tending them according to some schedule or whenever the noise of caught fish sloshing about in the water is heard. When a lull from the pressure of

*243 well into August and September. Thus, it would appear that the rice field is utilized for only six months of the year, leaving much to be desired for an economic use of it during the other half-year.

• 231 311 If consideration is given to the nature of buffalo raising, however, it will be realized that these six months are not actually wasted. In the dry season following rice harvest, buffaloes feed freely on rice stumps in the fields and on supplementary straw accumulated in the homelot during threshing. After the first few showers of rain in April, the fields are gradually covered with noncultivated grasses and the buffaloes enjoy this green feed all the more. Even when the fields are wet enough for plowing in June, the early field work is concentrated on the seedbed, leaving the greater part of the fields which have not yet been plowed to the buffaloes to graze usually during their 10 a.m. to 2 p.m. recess from work in the seedbed. When the farmer starts working on the fields other than the seedbed, the grazing area is gradually reduced and the buffaloes are now partially fed with green grasses which grow wild in limited areas between rice fields and canals to which the farmer has customary right. As the grazing area is further reduced, more and more grasses are given. By the time all the fields have been plowed, the buffaloes are totally fed with the green grasses. This total green grass feeding lasts until the next harvesting season when straw becomes available to supplement green grasses which now become

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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231
911 more scarce as the dry season creeps in, thus completing the annual buffalo feeding cycle.

243
231 Double cropping has been suggested as a means by
911 which farm income may be increased. To this suggestion
[312] several obstacles have been mentioned, most important of which center around the lack of ample water supply and water control and an envisaged severity of pests predatory on an early crop.[2] In the light of the discussion in the previous paragraph, the inevitable reduction of grazing area and the consequent loss of feed supply may be added to the list of obstacles to double cropping. It is rather unfortunate that little attention has been paid to this all important problem of buffalo feeding. The general idea seems to follow the line that there is no problem of feed and that the only problem concerning draft animals lies in the control of diseases. If this negligence persists, there is danger that the uncultivated grasses which are the least expensive buffalo feed might be depleted. Because of limited grazing area, buffaloes in most commercial rice growing villages in the Central plain are already not reproducing themselves rapidly enough to maintain their number. This is evident in the annual importation into the region from the northeast of inferior stock which is less strong and has shorter life. Without grass conservation, it would not be long when Thai farmers will have to deliberately "grow grass" for their

2. Janlekha, op. cit.

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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243 buffaloes heretofore undreamt of and will have to bear
231 the consequent burden of increased cost of producing rice.
311

Some description of the homelots which constitute
311 almost five per cent of the land area of Bangchan has already
951 been given in the section on vegetation, Chapter II. From
[231] the standpoint of land utilization, functions of the homelot
[235] other than providing standing room for the living quarters
[244] may be mentioned as follows:
[245]
[226]

1. It provides space for threshing and for storage of rice and farm equipment including buffaloes.
2. It provides room for chicken or duck raising.
3. It provides land for a kitchen garden, and for fruit and vegetable growing.
4. It provides space for fish trapping by the draining method.

To serve these functions, homelots in any rice growing village, where the fields are submerged under water during the entire life of the rice plant, must be high above water level during the flood season, must be well drained, and must have pools with ample shade.

243
311 Rice land in its natural state does not meet these requirements for a homelot. In the first place its level is too low. Second, the impervious layer of clay characteristic of rice land does not permit soil drainage. To make a homelot out of rice land, it is necessary that the prospective site be mounded up to a level two or three feet higher than the level of the surrounding fields. The hole from which

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B. Old equipment with slight modifications:

Noria (larger ones are now used because they are more adapted to windmills than smaller ones to which human energy was applied in the old days).

C. Recently employed equipment, mostly labor saving devices:

Gasoline engine, first used in Bangchan in 1930 or slightly later.
Winnowing machine, relatively new, date of introduction into the village not certain.
Propeller windmill, allegedly invented in the village, first used in 1940.

On the whole, it may be said that very few improvements have been made in farm equipment. For this, two opposing explanations may be advanced: (1) Little attention has been paid in the past to farm equipment, resulting in continual using of primitive implements which are inefficient and could be improved if enough attention and effort along the line were given; (2) These basic farm equipment are functionally efficient although they may be simple in form -- the fact that there has been no structurally change in the past few hundred years means that they have successfully stood the test of time rather than that the effort to improve these equipment has been lacking.

The author reserves his judgment on the validity of either of these two explanations, for scientific study of rice farm equipment in Thailand on which proper judgment may be based is not known to him.

Draft Animals

• 231

In Bangchan, as in most of the rice producing areas of the country, only one kind of draft animal is used -- the buffalo. This subject has already been dealt with in the

231 section on livestock, Chapter 2. The method of buffalo feed has also been mentioned in the section on land utilization, Chapter 3.

243
231 Inasmuch as draft animals, or more specifically buffaloes, provide services in rice production, they may very well be considered a kind of farm equipment. They are used in all steps of breaking and leveling the soil and also in threshing. They are absolutely indispensable on rice farms.

231
435 An average purchased value of a work buffalo was 985 baht per head. According to the 1948 survey, buffaloes began their farm work at the age of 4-5 years and remained in service [237] for an average of 10½ years. When they are dead, their meat is consumed and the hide is dired and made into rope. Some farmers sold the buffalo carcass on the spot and received an average price of 250 baht in 1948. When the original cost of 985 baht was subtracted by the residual value of 250 baht and the result was divided by the length of service of 10½ years, the annual depreciation so obtained was found to be 70 baht. This method of computation for depreciation when adopted for buffaloes appears to be rather crude, for the maintenance cost was neglected and some buffaloes might be bought at the age over 5 years (at varying prices) in which case their length of service might be expected to be shorter than 10½ years. The general pattern, however, was that farmers bought buffaloes which were freshly brought in from the northeast at the age between 4 and 5 years.

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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A243 Finally, buffaloes as equipment are as old as the wet
• 231 rice culture itself. It is rather unfortunate that in Thailand there has been no systematic effort to improve buffalo breeds. As a matter of fact, the general practice of castrating good buffaloes so that they may turn out even better work while letting alone the inferior ones has tended to lower the working quality of the buffalo.

A243 Steps in Rice Production

In the transplanting method of growing rice, the seeds are sown first in the seedbed, and then at the appropriate growth stage the seedlings are transplanted onto the fields which have been prepared during the time the seedlings are being nurtured in the seedbed. The preparation of the seedbed is generally the same as that of the transplanted fields, except that the former is more thoroughly done since the soil in the seedbed must be finely pulverized and very well leveled. From the standpoint of labor utilization, therefore, the process of production can be more conveniently described step by step according to the work schedule of one farm which was under observation during the entire work season of the 1953-54 crop year. The various steps are listed below:

1. Plowing. Started on June 4 and ended on August 23. This immediately followed the big shower of rain on June 3 which sufficiently wet the soil. Consideration was also paid to the water level in the canal which was then high enough. Plowing was first concentrated in the field designated to be the seedbed. The parcel was plowed and cross-plowed several

#243 cooperative work group, the proportion of the work done by the
476 family workers themselves and that done through cooperative harvesting being about one to five. Cooperative harvesting started on December 4 and ended on January 25, while family harvesting started on December 12 and ended on February 6.

#243 16. Threshing. This step can be further broken down into piling of harvested bundles of rice around the threshing floor, laying some of these on the threshing floor, actual threshing by having the buffaloes tramp over and over the rice stalks with rice seeds on them (by this time the stalks had already broken loose from the bundle), frequent turning of stalks that were in the lowest layer upward (with the use of pitchforks), separating the threshed paddy from the stalks (with the use of pitchforks and rakes), and finally piling of the threshed paddy. Threshing started on December 15 and ended on February 14. It was one of the few steps in rice production in which the work was often carried on into the night.

17. Winnowing. Started on December 25 and ended on February 14. The completion of winnowing marks the end of rice production as far as rice farmers are concerned.

18. Stacking of straw. After threshing, straw was piled up in stacks around poles in the homeyard or the edge of the field near the homeyard. This was done on December 29 and February 4. It was a simple step using only a total of 16 man-hours of labor.

231 19. Procuring grass for buffaloes. Care for buffaloes is a whole year job involving leisurely work, such as taking the buffaloes to graze on the fields which any child can do,

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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231 as well as painstaking work like ridding them of insects during a certain period of the year by smoking throughout the night. Besides, in some years when the water level is exceptionally high, for example in 1952, the buffaloes may have to be tended in other villages of higher elevation. Moreover, there always is need for constant guard against robbery of these precious draft animals. It is extremely difficult to keep a record of labor spent on these activities. The author is reluctant to attempt even at mere estimation.

In view of the difficulties mentioned above, only the procurement of grass for the buffaloes which could be measured was taken into consideration in the computation for labor requirements in rice production. This was done with the realization that there was more labor actually spent on the tending of buffaloes which could not be estimated and which should be considered as extra work over the calculated requirement. Our records show that cutting grass for buffaloes started on June 14 and ended on November 27 when the buffaloes began to feed on straw. (This straw was obtained from a neighbor's field at the mouth of Bangchan Canal which was planted to an early variety of rice; hence, even though harvesting had not yet begun on the farm under study, it was possible to feed the buffaloes with straw and save time that would have to be spent on procuring fresh grass for buffaloes during this busy period when all available labor should be spent on harvesting.)

243 476 20. Supervising the work done by cooperative workers. The amount of supervision varied with the kind of cooperative

*243 Since the farm work usually followed the same pattern for a
461 certain period, it was observed that Phan remembered quite well
+128 the time and the kind of work done by each family worker during
the past two or even three days. The time of work was recorded
• [231] to the nearest half-hour. In Tables 35 and 35, labor spent by
[464] family workers, piece-workers hired by the family, and buf-
[592] faloes, on different steps in rice production was given in
man-hours and buffalo-hours. The dates when these various
[476] jobs started and ended were also given. It should be noted,
however, that labor recorded as spent on cooperative work was
actually not spent on the family farm but rather on farms of
other cooperative members. This was nevertheless exactly com-
pensated by cooperative work on this farm on several occasions
which were not entered in the calculation to avoid error
because of duplication.

*243 The data from Tables 35 and 36 may be summarized as
461 follow:

221 1. Man labor provided by farm staff.

[592] Work started June 4, ended February 14, a total of 248
[464] work days.
[231] Total man-hours spent by farm staff -- 5,478½.

2. Man labor provided by piece-workers.

Work started July 19, ended August 30, a total of 10
work days.
Total man-hours spent by piece-workers -- 229.

3. Animal labor provided by buffaloes.

Work started June 4, ended February 13, a total of 112
work days.
Total buffalo-hours -- 2,119.

[TEXT CONTINUED ON PAGE 246]

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TABLE 36

SUMMARY OF YEAR ROUND WORK BY BUFFALOES ON CHOM FARM
Bangchan, Thailand, 1953

	Duration Start	End	Days in work	Buf-hrs.
1. Plowing	June 4	Aug 23	49	918½
2. Harrowing	June 13	Aug 24	28	582
3. Rolling	June 13	Aug 22	7	84
4. Hauling	Aug 23	Aug 23	1	8
5. Prepare thresh floor	Nov 30	Dec 4	5	32
6. Threshing	Dec 15	Feb 13	35	494½
Total	June 4	Feb 13	112	2,119

243 221 461 under a lively atmosphere. Moreover, the amount of work done depends solely on the amount of human labor utilized. Hence, if the operator wants to finish his harvesting in time when he has not enough available labor, he simply hires more piece-workers. The situation is different in the critical period of cultivation and planting, when the amount of work done depends not only on the amount of labor utilized but also on the accomplishment of the preceding steps which are governed by water condition, weather condition, available equipment, animal labor as well as man labor.

243 221 In the 1953-54 crop year, it was observed that na nar started on June 4 and ended on September 30, na nam lasted from October 1 to December 3, and na khao from December 4 to February 14.

243 461 While the figures on total labor requirement in rice production represent valuable information, an earlier discussion in this section has led us to the belief that the mere knowledge that it takes 272 man-hours and 101 buffalo-hours to produce 100 tang of paddy is not enough to demonstrate the labor requirement situation if it is to serve as a guide in problem locating and problem solving. These figures must be further broken down into those required during the critical period and those required in the non-critical period.

243 221 231 461 Our records show that of the 5,707½ man-hours spent in producing 2,100 tang of paddy on Chom Farm, 3,226½ man-hours were utilized in na nar (June 4 to September 30, 119 days), 133½ man-hours in na nam (October 1 to December 3, 64 days),

243 and 2,347½ man-hours in na khao (December 4 to February 14, 72
221 days). Similarly, of 2,119 buffalo-hours spent on the same
231 production, 1,592½ were utilized in na nar, 24 in na nam, and
461 502½ in na khao. From these data, we may calculate the averages for daily labor utilization in each period as follow:

1. Na nar (119 days)

Total man-hours, 3,226½; daily man-hours, 27.1
Total buf-hours, 1,592½; daily buf-hours, 13.4

Man-hours per rai, 66.
Buf-hours per rai, 32½.

2. Na nam (64 days)

Total man-hours, 133½; daily man-hours, 2.1
Total buf-hours, 24 ; daily buf-hours, 0.4

Man-hours per rai, 2½.
Buf-hours per rai, ½.

3. Na khao (72 days)

Total man-hours, 2,347½; daily man-hours, 32.6
Total buf-hours, 502½; daily buf-hours, 7.0

Man-hours per rai, 47.
Buf-hours per rai, 10.

It is seen that three-fourths of the total buffalo labor was utilized in na nar. This was to be expected, for most of the steps involving buffalo labor were in this period. It is important to observe that buffaloes assumed an active role in practically all steps of land preparation -- plowing, harrowing, and rolling. Human labor, on the other hand, played only a passive part in these steps.

243 Table 36 shows that buffaloes were utilized in six
231 steps in rice production -- plowing, harrowing, rolling, haul-
461 ing, preparation of threshing floor, and threshing. These steps

*243 may be classified according to the way the animals are used
• 231 as follow:
461

1. Steps in which buffaloes are always used and in constant proportion to men.

Steps	Proportion of buffaloes to men
Plowing	1 to 1
Harrowing	2 to 1
Rolling	2 to 1

2. Steps in which buffaloes are always used but not necessarily in constant proportion to men.

Preparation of threshing floor: Four buffaloes are led by one worker to tramp over the dirt floor which was soaked with water on the previous day. While the buffaloes are tramping over the floor, another worker levels the floor with hoe. The number of buffaloes and workers may be more or may be less, and there is no definite proportion between the animals and men.

Threshing: Four buffaloes are led by one worker to tramp over harvested rice stalks (with paddy still intact) which have been spread over the threshing floor. While the buffaloes are tramping over the rice stalks, two or three other workers separate straw from the threshed paddy with pitchforks.

3. Steps in which buffaloes are not usually used but are sometimes used to minimize human labor when opportunity permits.

Hauling: Two buffaloes are led by two workers to draw the boat carrying seedlings along the muddy water way. Of a total hauling work of 733 man-hours in 55 work days lasting from July 17 to February 14, buffaloes were used only once on August 23, involving only 8 buffalo-hours.

*243 Since buffaloes are used in the critical period of
221 na nar in the three steps where they must be used and used in
231 constant proportion to men, it is not difficult to see that
461 the field work accomplished in this critical period depends more on buffaloes than on human workers. It was mentioned that

243 Chom Farm utilized four buffaloes and four regular workers
221 including the operator himself. Supposing that one buffalo
231 is sick, we might expect that the work accomplished in this
461 period would be reduced to three-fourths. On the other hand, if one regular worker is sick, that would not materially affect the amount of work done, for the sick worker would certainly be replaced by a substitute. Even if no extra family worker is available, it would be only a matter of hours that Chom would be able to recruit one more worker among his relatives and neighbors. He could not recruit a temporary service of a buffalo. If more buffalo labor is badly needed, the only alternative is to purchase the animal. Looking from a different angle, if Chom wants to finish plowing and harrowing ahead of the original schedule for fear of an early inundation, he could not accomplish that by simply utilizing more human labor alone. It is thus seen that buffaloes, more than human workers, are the limiting factor in the accomplishment of the field work during the critical period of cultivation and planting season.

Labor Adjustment Devices

243 Rice plants have one unique quality: each variety will
221 mature on a certain exact date no matter how early or how late it is planted.[6] If there were only one variety of rice in existence, this would be a serious handicap to rice growers, for there would certainly be much more demand for labor in

6. The exceptions are the very early varieties which mature at the age of about 90-100 days. Ripening dates of these varieties are set only by the length of time they have been planted, regardless of the time of the year.

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7: Janlekha X-4,5 (1948-1953)1956 AO7 Central Thai AO7
Bangchan

Buf-hr.

CHART II

SEASONAL VARIATION OF BUFFALO LABOR SPENT ON CHOM FARM
Bangchan, Thailand, 1953

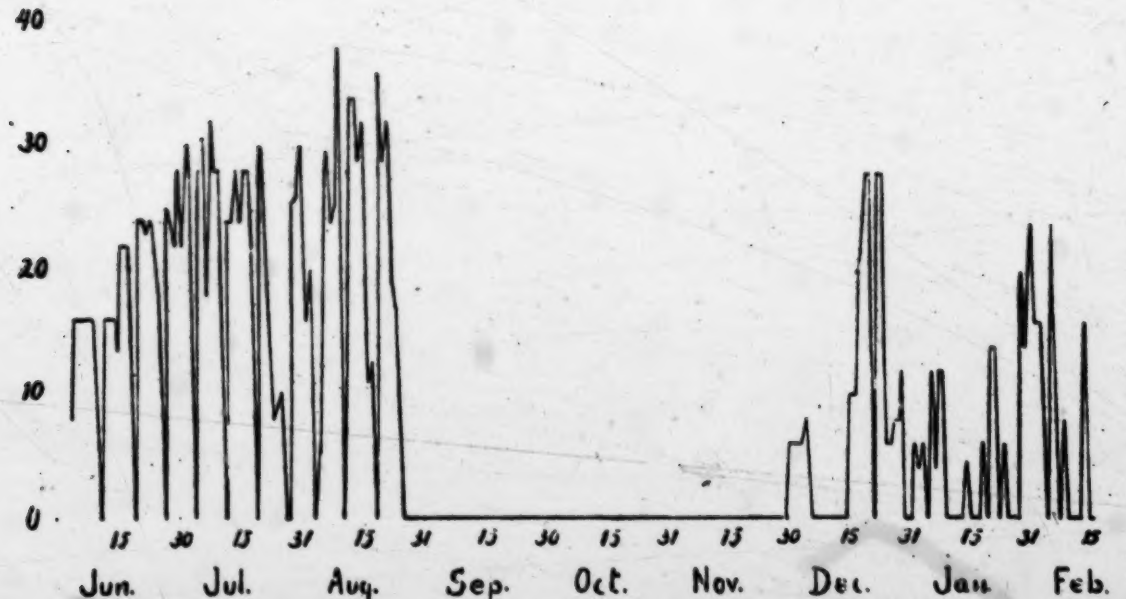

TABLE 37

DAILY LABOR SPENT BY CHOM FARM STAFFS
Bangchan, Thailand, 1953

Date		Animal labor	Human labor		
			On farm	On coop. work	Total
		buf-hr	man-hr	man-hr	man-hr
Jun	4	8	24	--	24
	5	16	28	--	28
	6	16	28	--	28
	7	16	28	--	28
	8	16	28	--	28
	9	16	28	--	28
	10	8	12	--	12
	11	--	16	--	16
	12	16	18	--	18
	13	16	15½	--	15½
	14	16	27½	--	27½
	15	13½	29	--	29
	16	22	19½	--	19½
	17	22	16½	--	16½
	18	20	26½	--	26½
	19	--	14½	--	14½
	20	24	25	--	25
	21	24	24	--	24
	22	23	33	--	33
	23	24	24	--	24
	24	21½	25½	--	25½
	25	18	14	--	14
	26	--	18½	--	18½
	27	25	25	--	25
	28	24	25	--	25
	29	22	34½	--	34½
	30	28	32	--	32
July	1	22	43	--	43
	2	30	38	--	38
	3	27½	30	--	30
	4	--	23	--	23
	5	28	38	--	38
	6	30½	32½	--	32½
	7	18	21	--	21
	8	32	35	--	35
	9	28	28	--	28
	10	28	3-½	--	30½

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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TABLE 37 (Cont.)

DAILY LABOR SPENT BY CHOM FARM STAFFS

Date		Animal labor	Human labor		
			On farm	On coop. work	Total
		buf-hr	man-hr	man-hr	man-hr
July	11	--	23½	--	23½
	12	24	20	--	20
	13	24	26½	--	26½
	14	28	31	--	31
	15	24	38	5½	43½
	16	28	27½	--	27½
	17	28	36	--	36
	18	22	30	5	35
	19	--	36	--	36
	20	30	37½	--	37½
	21	28	37	4½	41½
	22	19	46½	5	51½
	23	8	20½	4½	25
	24	9	31	--	31
	25	10	16	--	16
	26	--	4	4	8
	27	--	17	4½	21½
	28	25½	27½	12	39½
	29	26	28½	9½	38
	30	28	21	13½	34½
	31	30	35	--	35
Aug	1	16	18	6	24
	2	20	21½	7	28½
	3	--	7½	8½	16
	4	5	17	9½	26½
	5	22½	24½	16	40½
	6	29½	29½	10½	40
	7	24	30½	6½	37
	8	25½	25½	7½	33
	9	38	26	10½	36½
	10	--	8	19½	27½
	11	28	16	13	29
	12	34	19	16½	35½
	13	34	25½	12	37½
	14	29	19	7½	26½
	15	32	81½	4	85½
	16	11	67½	4	71½
	17	12½	35	5½	39½
	18	--	4½	8	12½
	19	36	38	--	38
	20	29	17½	8½	26

TABLE 37 (Cont.)

DAILY LABOR SPENT BY CHOM FARM STAFFS

Date	Animal labor	Human labor		
		On farm	On coop. work	Total
	buf-hr	man-hr	man-hr	man-hr
Aug 21	32	18	6½	24½
22	19	28	7	35
23	17	41½	--	41½
24	8	16	4½	20½
25	--	19	7	26
26	--	14½	3½	18
27	--	21	15	36
28	--	4	16	30
29	--	2	22½	24½
30	--	14	14	28
31	--	8	4	12
Sept 1	--	8	9	17
2	--	27½	10	37½
3	--	12½	11½	24
4	--	19	7	26
5	--	21½	3½	25
6	--	19	--	19
7	--	17	--	17
8	--	12	--	12
9	--	24	--	24
10	--	6	--	6
11	--	11	3	14
12	--	9	--	9
13	--	6	--	6
14	--	2	--	2
15	--	8	--	8
16	--	3½	--	3½
17	--	4½	--	4½
18	--	2	--	2
19	--	2	3½	5½
20	--	2	12	14
21	--	2	7	9
22	--	2	11	13
23	--	2	7	9
24	--	2	--	2
25	--	2	14	16
26	--	2	14	16
27	--	2	14	16
28	--	16	--	16
29	--	2	7	9
30	--	2	--	2

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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TABLE 37 (Cont.)

DAILY LABOR SPENT BY CHOM FARM STAFFS

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Date		Animal labor	Human labor		
			On farm	On coop. work	Total
		buf-hr	man-hr	man-hr	man-hr
Oct	1	--	2	--	2
	2	--	2	--	2
	3	--	2	--	2
	4	--	2	--	2
	5	--	2	--	2
	6	--	2	--	2
	7	--	2	--	2
	8	--	2	--	2
	9	--	2	--	2
	10	--	2	--	2
	11	--	2	--	2
	12	--	2	--	2
	13	--	2	--	2
	14	--	2	--	2
	15	--	2	--	2
	16	--	2	--	2
	17	--	2	--	2
	18	--	2	--	2
	19	--	2	--	2
	20	--	2	--	2
	21	--	2	--	2
	22	--	2	--	2
	23	--	2	--	2
	24	--	2	--	2
	25	--	2	--	2
	26	--	2	--	2
	27	--	2	--	2
	28	--	2	--	2
	29	--	2	--	2
	30	--	2	--	2
	31	--	2	--	2
Nov	1	--	2	--	2
	2	--	2	--	2
	3	--	2	--	2
	4	--	2	--	2
	5	--	2	--	2
	6	--	2	--	2
	7	--	5	--	5
	8	--	2	--	2
	9	--	2	--	2
	10	--	2	--	2

TABLE 37 (Cont.)

DAILY LABOR SPENT BY CHOM FARM STAFFS

Date		Animal labor	Human labor		
			On farm	On coop. work	Total
		buf-hr	man-hr	man-hr	man-hr
Nov	11	--	2	--	2
	12	--	2	--	2
	13	--	2	--	2
	14	--	2	--	2
	15	--	2	--	2
	16	--	2	--	2
	17	--	2	--	2
	18	--	2	--	2
	19	--	2	--	2
	20	--	2	--	2
	21	--	2	--	2
	22	--	2	--	2
	23	--	2	--	2
	24	--	2	--	2
	25	--	2	--	2
	26	--	2	--	2
	27	--	2	--	2
	28	--	2	--	2
	29	--	2	--	2
	30	6	5	--	5
Dec	1	6	2½	--	2½
	2	6	1½	--	1½
	3	6	1½	--	1½
	4	8	2	7	9
	5	--	--	--	--
	6	--	--	--	--
	7	--	--	--	--
	8	--	25½	--	25½
	9	--	33	--	33
	10	--	--	--	--
	11	--	12½	4½	17
	12	--	8	5	13
	13	--	16	22	38
	14	--	--	15	15
	15	10	17	16	33
	16	10	30	19	49
	17	20	33	10	43
	18	22	34	15	49
	19	28	24½	21	45½
	20	28	19½	24	43½

TABLE 37 (Cont.)

DAILY LABOR SPENT BY CHOM FARM STAFFS

Date	Animal labor	Human labor		
		On farm	On coop. work	Total
	buf-hrs	man-hr	man-hr	man-hr
Dec 21	--	4½	18	22½
22	28	30½	21	51½
23	28	43½	27½	71
24	6	40	8	48
25	6	21	18½	39½
26	8	34½	--	34½
27	8	24	18	42
28	12	17½	24	41½
29	--	14½	24	38½
30	--	47	--	47
31	--	14½	16	30½
Jan 1	6	23	24½	47½
2	4	17	24	41
3	6	26½	24	50½
4	--	27½	32	59½
5	12	25½	32	57½
6	4	20	36	56
7	12	25½	32	57½
8	12	26½	32	58½
9	--	34	15	49
10	--	19½	16	35½
11	--	25	9	34
12	--	23½	18	41½
13	--	23½	10	33½
14	4½	32	11	43
15	--	26	16	42
16	--	10	9	19
17	--	16½	15	31½
18	6	21	9½	30½
19	--	33	10	43
20	14	25½	16	41½
21	14	17½	10	27½
22	--	32½	5	37½
23	6	5½	9½	15
24	--	74½	--	74½
25	--	2½	8½	11
26	--	22	--	22
27	--	29½	--	29½
28	20	47½	--	47½
29	14	31	--	31
30	20	24	--	24
31	24	29	--	29

TABLE 37 (Cont.)

DAILY LABOR SPENT BY CHOM FARM STAFFS

Date		Animal labor	Human Labor		
			On farm	On coop. work	Total
		Buf-hrs	man-hr	man-hr	man-hr
Feb	1	16	25½	--	25½
	2	16	39½	--	39½
	3	14	43½	--	43½
	4	--	34	--	34
	5	24	38½	--	38½
	6	8	22	--	22
	7	--	5	--	5
	8	8	10½	--	10½
	9	--	--	--	--
	10	--	--	--	--
	11	--	--	--	--
	12	--	--	--	--
	13	16	12½	--	12½
	14	--	16	--	16

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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Buffaloes are considered as a kind of farm equipment, so the cost of buffalo labor appears under the item of cost of equipment. Buffalo labor is, however, so closely associated with man labor that it seems to be more appropriate to discuss it here.

It has been pointed out that the accomplishment of farm work during the critical period depends largely on buffalo labor. Farmers fully realize the importance of this draft animal, which is always given good treatment. Even in the busiest season of field preparation, when farmers work from dawn to dusk seven days a week, the buffalo has a full holiday each week (on Wan Phra, the Buddhist holiday) and has a four-hour noon recess, usually from 10 a.m. to 2 p.m., on work days.

243
433
435

3. Farm equipment and supplies: This element represents 26 per cent of the total cost of producing paddy. Our records show that in 1948 the total value of farm equipment and materials of the 104 sample-farms amounted to 559,626 baht, averaging 5,381 baht per farm, and ranging from 443 to 16,733 baht. The frequency distribution of the value per farm of farm equipment and materials is shown in Table 44.

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Table 45 shows the frequency distribution of the value per rai of farm equipment and materials which ranges from 34 to 518 baht, averaging 159 baht. It is seen, in spite of this rather wide range, that three-fifths of the value per rai concentrate in the interval between 100 and 200 baht per rai.

7: Janlekha X-4,5 (1948-1953)p956 AO7 Central Thai AO7
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434
*[231]
[235]

The only livestock kept on rice farms other than buffalo, which were included under consideration of farm equipment, are chickens and ducks, which are raised "naturally." It was earlier mentioned that the size of the flock was more or less constant. Livestock, therefore, did not figure in significant inventory changes, and can also be left out.

*[243]

The only item of supplies on rice farms is paddy stock. This is used up and sold out each year. For more or less the same size of farm, and spreading over a series of five years, a difference in the average amount of paddy stock at about the same time of the year in 1948 and in 1953 would not figure significantly in inventory change.

It was also already mentioned that rice farmers did not want to keep cash at their homes for fear of robbery, and that any person receiving a large amount of cash quickly passed the money on to others. We can therefore assume that the amount of cash on hand at the same time of the year does not vary much. Cash, then, may also be left out of consideration.

434
432
511

Of the items of assets enumerated above, there are now to be considered only land, household equipment, gold and accounts receivable (payable). In all purchases of land, gold, and household equipment, only the cash paid was recorded and considered as assets accumulated. For example, when an operator purchased a parcel of land at 7,000 baht and paid the down payment of 1,000 baht, only the 1,000 baht